Delivery of Essential Medicines by Drones in Hilly areas.

Batch - 1

Group 4 (G4).

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Problem Description

Throughout the developed and developing world, access to life-saving and critical health products are hampered by what is known as the last-mile problem - the inability to deliver needed medicine/blood from a city to rural or remote locations because of inadequate transportation, communication or supply chain infrastructure.

To solve this connectivity problem, a national drone delivery system needs to be created to carry urgent medicines to patients in need in Hilly and inaccessible areas. The team needs to build a drone that can deliver essential medical products/blood of up to 2.0 kilograms per flight while maintaining the cold chain if needed - in an average fulfillment time of 30 minutes. Also, it should be usable in emergencies, and disaster prone areas.

Advantages

01

Life saver

Provide humanitarian aid to areas affected by natural disasters and emergencies.

02

Efficiency

leading to a quicker, more efficient response time.

03

Payload

Can deliver up to the payload of 2 kilograms

04

Avoid natural calamities

Drone Delivery is unaffected by natural calamities like earthquakes.

Advantages

05

Inexpensive

Inexpensive compared to other modes of transportation.

06

No need of human

Less Human Intervention in the complete process of delivery

07

Can deliver anywhere

Delivery is not confined to specific geographic locations.

08

Can deliver anything

The provisions include medical supplies, antivenom and blood products.

Disadvantages

01

Collection of data

Drone collects the data values like altitude, speed, location through GPS.

02

Less accurate

The mathematical distance and value needs to match the actual values for better accuracy

03

Can be dislocated

A network of semi-autonomous systems in a hilly region can dislocate the drone and can lose control over it.

04

Turbulence

Harsh climatic conditions can cause turbulence and drone may lose control .

Challenges

Lack of data

Lack of real-world data from autonomous navigation system implementation.

Network Issue

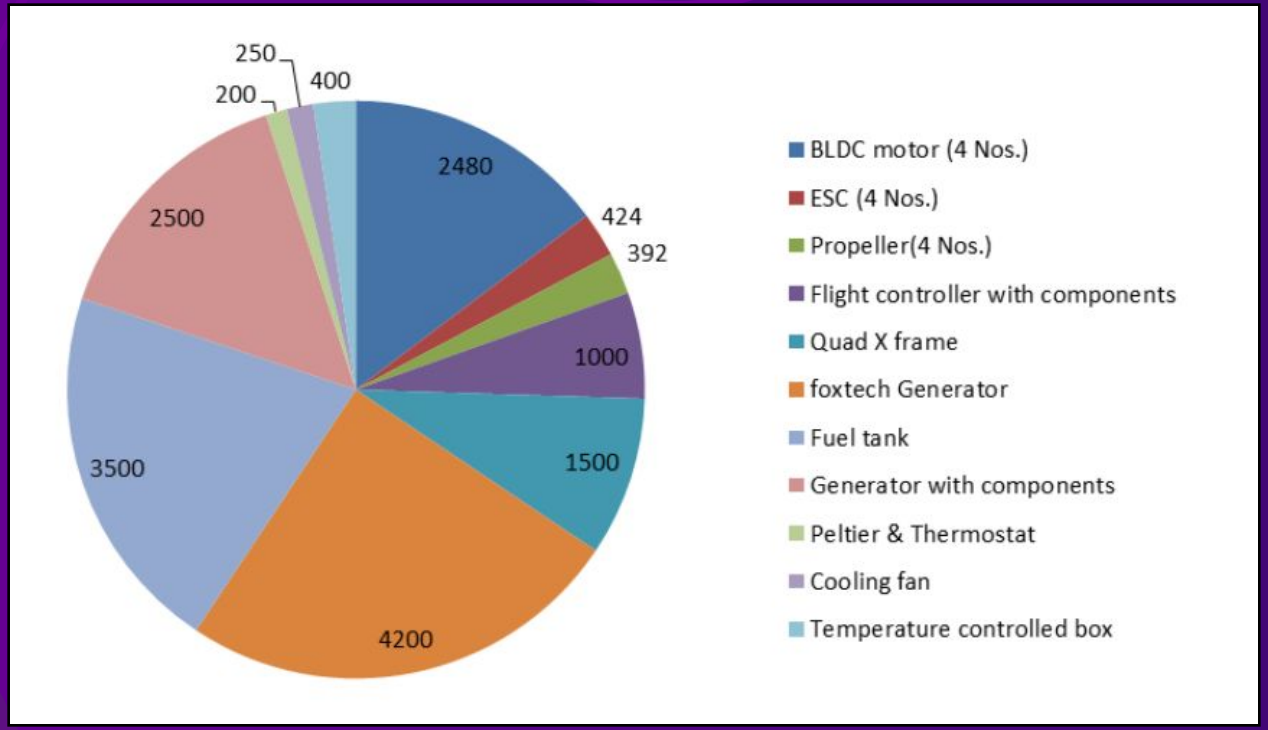
Network issue in a hilly area.

Damage to drones

High winds in hilly areas can cause damage to drones

Maintenance

Fueling for long-distance travel. Integration of hardware and software


250
200
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2480
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392
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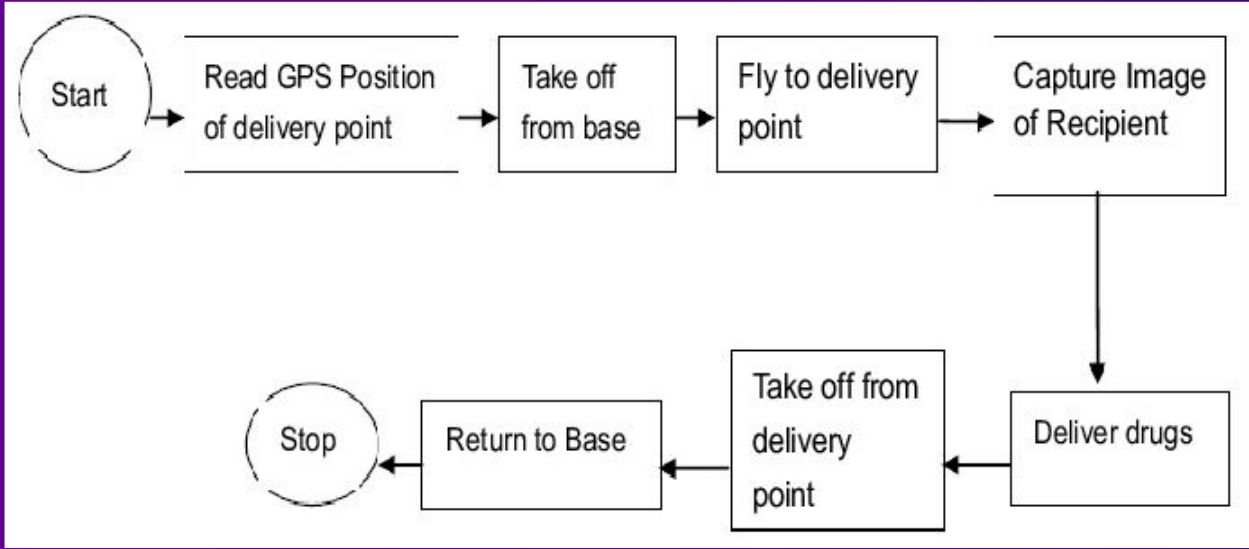
BLDC motor (4 Nos.)
ESC (4 Nos.)
Propeller(4 Nos.)
Flight controller with components
Quad X frame
foxtech Generator
Fuel tank
Generator with components
Peltier & Thermostat
Cooling fan
Temperature controlled box


Start
Read GPS Position of delivery point
Take off from base
Fly to delivery point
Capture Image of Recipient
Deliver drugs
Take off from delivery point
Return to Base
Stop

Tech Stacks used

Thank You